

# Endothelial Cell Growth Factor, bovine (bECGF)

from bovine brain  
culture grade

Cat. No. 11 033 484 001

75 µg

**Version 5.0**  
Content version: November 2010

Store at +2 to +8°C

## 1. What this Product Does

### Contents

75 µg lyophilizate, filtered through 0.2 µm membrane prior to lyophilization.

### Storage and Stability

Stable at +2 to +8°C until the expiration date printed on the label.

The reconstituted, undiluted solution is stable at –15 to –25°C.

Store the reconstituted solution in aliquots at –15 to –25°C.

⊗ Avoid repeated freezing and thawing.

### Application

Endothelial cells from human umbilical vein (HUV-EC) can be established as primary cultures by traditional methods. The serial propagation of these cells has proved to be difficult. The long-term propagation of these cells *in vitro* can be achieved with an extract prepared from bovine brain. The active component has been identified, purified, and characterized as endothelial cell growth factor (ECGF) (1).

ECGF and basic FGF (fibroblast growth factor) are the only mitogens stimulating the growth of these cells. The introduction of a fibronectin or collagen matrix to the cell culture system permits cultivation of endothelial cells at clonal densities. The use of human fibronectin in conjunction with ECGF and fetal calf serum-supplemented media allows the long-term serial propagation of human endothelial cells (20–60 cumulative population doublings) (2–5, 6, 7). With ECGF, the fetal calf serum (FCS) requirement can be reduced (6, 7). Heparin potentiates the mitogenic activity of crude preparations of ECGF (5).

ECGF (culture grade) has also been reported to eliminate the need for feeder cells in the clonal growth of hybridomas and other cell types (8, 9).

## 2. Additional Information on this Product

### Reconstitution

Reconstitute the lyophilizate in sterile water (final concentration 10 mg/ml). Additional dilutions can be made with any balanced salt solution or medium (final concentration 1–3 mg/ml).

### Preparation

ECGF culture grade is a crude preparation of endothelial cell growth factor (ECGF). It is purified from bovine brain by a modification of the method of Maciag *et al.* (10, 11).

### Biological Activity/ Working Concentration

Optimal concentration for human umbilical vein endothelial cells (HUV-EC) range from 100–300 µg/ml. Optimal concentration with heparin (50 µg/ml) is 20 µg/ml. (6, 7)

### Species Specificity

Bovine ECGF is effective on mouse, bovine, and human cells.

### Specific Activity/EC<sub>50</sub>

Less than 5 µg/ml, with a minimum specific activity (EC<sub>50</sub>) of the indicated standard.

### EC<sub>50</sub> Definition/Unit Definition:

The concentration of bECGF that is required to support half-maximal stimulation of cell proliferation (MTT cleavage) with 3T3 (NR6) cells.

### References

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- 5 Thornton, S. C., Müller, S. N. & Levine, E. M. (1983) *Science* **222**, 623–625.
- 6 Maciag, T. Weinstein, R. (1984) In: *Cell Culture Methods for Molecular and Cell Biology*, Vol. 1 (Barnes, D. W., Sirbasku, D. A. & Sato, G. H., eds.) Alan R. Liss, Inc., New York, pp. 195–205.
- 7 Maciag, T. & Weinstein R. (1983) In: *Hormonally Defined Media* (Fischer, G. & Wieser, R. J., eds.) Springer Verlag, Berlin, Heidelberg, New York, Tokyo, pp. 68–78
- 8 Pintus, C., Ransom, J. H. & Evans, C. H. (1983) *J. Immunol. Meth.* **61**, 195–200.
- 9 Ransom, J. H. (1986) *Methods Enzymol.* **121**, 293–295.
- 10 Maciag, T. *et al.* (1979) *Proc. Natl. Acad. Sci. USA* **76**, 5674–5678.
- 11 Maciag, T. Hoover, G. A. & Weinstein, R. (1982) *J. Biol. Chem.* **257**, 5333–5336.

### Changes to Previous Version

- Replacement of the wording “sterile-filtered”
- Editorial changes.

### Symbols

In this Pack Insert, the following symbols are used to highlight important information:

Symbol	Description
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- |   |   |
|---|---|
| ⊗ | Information Note:<br>Additional information about the current topic or procedure. |
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